NEW HAMPSHIRE
STRATEGIC WATERSHED ACTION TEAMS
SUMMER 2012 QUARTERLY REPORT

Trout Habitat Projects Improve Water Quality

and Habitat for Forest Landowners

Above: From left to Right: NRCS' Wendy Ward and Steve Pytlick work with NH Fish and Game's John McGee and Trout Unlimited's Colin Lawson to provide technical assistance to Fred Ernst on adding wood to 2600 feet of stream. Wood has been historically removed from streams in the Northeast at culverts which are cleaned-out annually. Furthermore, forest management often maintains middle aged forest and subsequently trees don't enter the stream naturally. This creates a need to add wood intentionally.

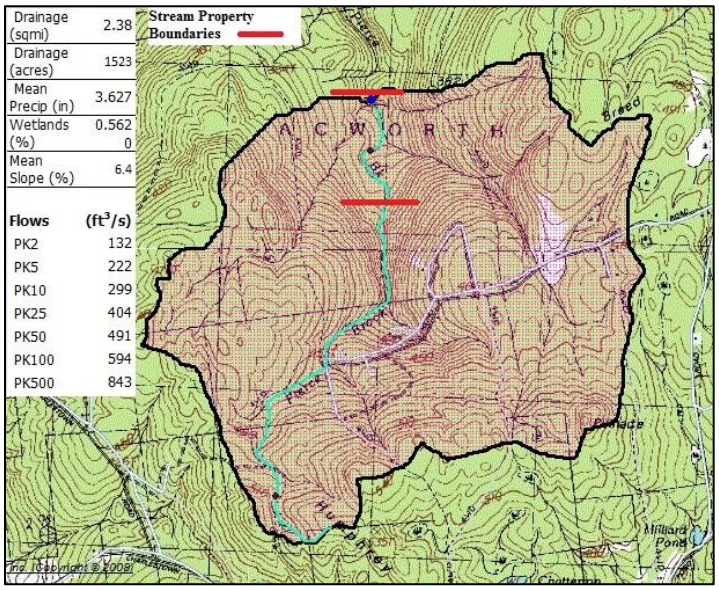
There are several benefits for adding wood to streams beyond improving trout habitat including small including: reducing velocities of flood waters, re-engaging floodplains, retaining nutrients and increasing the number of pools which provide key habitat for brook trout. Both SWAT agreements with NH Fish and Game as well as Trout Unlimited are playing a key roll in this landscape and are helping with project

implementation, permitting and advocacy to the abutting landowners. This project pushes NH over the 10 mile mark of wood additions to coldwater streams!

Project Background:

The Pierce Brook wood installation project will begin construction on August 27, 2012. This project, initiated by Fred Ernst (property landowner) and supported by Trout Unlimited, will reintroduce large wood to roughly 2,000 feet (610 meter) of 1st and 2nd order stream channel located in Acworth, NH. Pierce Brook is a tributary to the Little Sugar River which has its confluence with the CT River in Charlestown, NH.

Overall, the Little Sugar River watershed is approximately 30.2 square miles (mi^2) with a two year bankfull stream flow event (Q2) of 1,030 cubic feet per second (ft^3s). The Pierce Brook wood loading project area has a drainage area of 2.38 mi^2 with a Q2 of 132 ft^3s. And above the actual project area on Pierce Brook, the headwaters drainage is .93 mi^2 with a Q2 of 56 ft^3s. The mean slope across the project area is 6.6 % allowing for the development of excellent riffle and pool habitat.



Above: the map outlines the entire drainage area of the proposed project site the watershed characteristics were delineated using NH StreamStats which is an online assessment tool created and maintained by the US Geological Survey.

An onsite strategy meeting was held on 7/16/2012 with the landowner, Trout Unlimited, and NH Fish & Game to review key restoration sites as well as electro-fish the stream to evaluate the existing fisheries resource. Over a 35 meter stretch, a mix of 19 young of year and adult brook trout were found along with 5 Slimy Sculpin; the results are presented below. Overall, the combined sampling would indicate relatively healthy water quality. Both species were slightly smaller than expected indicating limited habitat as well as food sources in this project area. The goal will be to double this population density for both species over the next two years.

Table 1. Results from 35 meter electro-fishing survey on Pierce Brook.

	Brook Trout				Slimy Sculpin			
	Count	Mean	Median	Range	Count	Mean	Median	Range
Length (mm)	19	76.6	62	94	5	60	52	25
Weight (grams)	19	6.5	2.2	21.2	5	2.8	1.6	3.8

Above: Stream channel just above project area a good example of the few existing riffle / pool complexes.

Above: a stream channel which lacks in-stream wood, and where the flood plain has been impacted from past agriculture, often incising the stream which then struggles to engage the floodplain during higher flows.

New Hampshire Heritage Bureau and NRCS Work to Document Small Whorled Pogonia, Consult with US Fish and Wildlife Service, and continue sustainable forest management

New Hampshire is home to one of the most abundant populations of Small Whorled Pogonia (*Isotria medeoloides*) quite possibly in the world. This Federally threatened plant has an interesting ecology, preferring hillsides where leaf litter collects and snow runoff appears to disperse seeds. Small Whorled Pogonia plants have a mysterious behavior of appearing some years and vanishing for years at time before re-appearing in the same location. NHB has monitored several sub-populations in the area since they were first discovered in 1983, but during a three year partnership funded by NRCS, Charlie Moreno, (private forester and Technical Service Provider), and sub-contractors have more than doubled the number of known plants to more than 500. Charlie has done an outstanding job of spearheading this project to protect the plants but also hopefully improve their populations through sustainable forestry practices.

The data collected will help with understanding the productivity of the plant in various forest settings, while also helping the forester and landowner practice sustainable forest management. Also, due to the extensive survey of the property, the US Fish and Wildlife Service was able to consult on the further expansion of forest trails and timber stand improvement with confidence of no adverse impacts to the populations. NHB will further look at abundance and productivity of the plant in various forest conditions with the hope of understanding the optimum conditions and potentially developing management strategies for declining populations.

Above: NHB contractor Scott Young measures a Small Whorled Pogonia to better understand the productivity in various forest habitats. He visits about 70 acres per year looking to find new plants and re-document known occurrences on the several hundred acre property. This data makes it possible for the landowner and forester to continue to manage their forest for high quality timber and wildlife habitat without impacting the plant. In the future, management prescriptions may be based on this data to benefit declining populations.

Above: Federally Threatened Small Whorled Pogonia (Isotria medeoloides) in a rare double bloom. Photo Credit Scott Young

NHB Documents Rare Plants Returning to the Landscape After Phragmites Control in Tidal Wetlands

As part of a control effort of Phragmites in 2011, NHB has documented several rare plants coming back to the area such as *Agalinis maritima*, *Iva frutescens* (three individuals), *Galium trifidum* ssp. *Halophilum*.

Above: *Iva frutescens, now only the 10th known population in the state of NH, emerges after invasive plants were removed.*

New Hampshire Fish and Game Develops Key Video Clips Detailing the Importance of Early Successional Habitats and Young Forests

As part of the outreach efforts for the NRCS forestry Initiative, NH Fish and game developed these two video clips to help with outreach to landowners please copy and paste the link into your browser.

http://youtu.be/q_73jszOw_E

www.takingactionforwildlife.org